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1       1. In a computerized system that includes a client system, a front-end server, and  
2 one or more back-end servers, all interconnected with a communication link, wherein the  
3 client system periodically accesses content stored on the one or more back-end servers  
4 through the front-end server, and wherein over time the content may be moved from one  
5 back-end server to another or may appear to be stored at a back-end server when in fact the  
6 content is not stored at that back-end server, a method of transparently redirecting a request  
7 for the content such that the client system is unaware of the redirection, the method  
8 comprising the front-end server performing the acts of:

9             receiving a request for the content from the client system;  
10            directing the request to a particular back-end server;  
11            receiving from the particular back-end server, a redirect response identifying  
12 one or more other back-end servers where the content is stored;  
13            automatically and without client system intervention, redirecting the request  
14 to a redirect back-end server, the redirect back-end server being one of the one or  
15 more other back-end servers identified in the redirect response;  
16            receiving the requested content from the redirect back-end server; and  
17            sending the requested content to the client system.

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19       2. The method as recited in claim 1 further comprising the act of adding a front-end  
20 indicator to the request in order to indicate that the front-end server is making the request on  
21 behalf of the client system.

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23       3. A method as recited in claim 2 wherein the front-end indicator is added to a  
24 hypertext transfer protocol User Agent header.

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2       4. A method as recited in claim 2 wherein the redirect response identifies a list of  
3 back-end servers where the content is stored.

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5       5. A method as recited in claim 4 wherein the list of back-end servers is identified  
6 in a hypertext transfer protocol 305 Use Proxy response from the particular back-end server.

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8       6. A method as recited in claim 4 further comprising the acts of:

9             requesting authentication credentials from the client system; and

10            receiving proper authentication credentials from the client system.

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12       7. A method as recited in claim 6 further comprising the acts of:

13            receiving an authentication token that is associated with the authentication  
14            credentials; and

15            using the authentication token as a key for a hash operation to identify the  
16            redirect back-end server from the list of back-end servers identified in the redirect  
17            response.

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19       8. A method as recited in claim 1 wherein the redirect response identifies a single  
20 back-end server where the content is stored.

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22       9. A method as recited in claim 8 wherein the single back-end server is identified in  
23 either a hypertext transfer protocol 301 Moved Permanently or 302 Moved Temporarily  
24 response from the particular server.

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10. A method as recited in claim 1, further comprising the acts of:

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receiving the requested content from the redirect back-end server; and  
sending the requested content to the client system.

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1           11. In a computerized system that includes a client system, a front-end server, and  
2 one or more back-end servers, all interconnected with a communication link, wherein the  
3 client system periodically accesses content stored on one or more back-end servers through  
4 the front-end server, and wherein over time the content may be moved from one back-end  
5 server to another or may appear to be stored at a back-end server when in fact the content is  
6 not stored at that back-end server, a method of redirecting a request for the content directed  
7 to a particular back-end server when the content is not stored at the particular back-end  
8 server, the method comprising the back-end server performing the acts of:

9                 receiving a content request from the client system through the front-end  
10 server, the content request including a front-end indicator in order to indicate that the  
11 front-end server is making the content request on behalf of the client system;

12                 examining the content request for the front-end indicator;

13                 the front-end indicator having been present in the content request, creating a  
14 redirect response to the content request that includes a list of one or more redirect  
15 back-end servers where the content is stored; and

16                 sending the redirect response to the front-end server so that the front-end  
17 server can redirect the request to the one or more redirect back-end servers.

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19           12. A method as recited in claim 11 wherein the front-end indicator is added to a  
20 hypertext transfer protocol User Agent header.

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22           13. A method as recited in claim 11 wherein the list of one or more redirect back-end  
23 servers is identified in a hypertext transfer protocol 305 Use Proxy response from the  
24 particular back-end server.

1           14. In a computerized system that includes a client system, a front-end server, and  
2 one or more back-end servers, all interconnected with a communication link, wherein the  
3 client system periodically accesses content stored on the one or more back-end servers  
4 through the front-end server, and wherein over time the content may be moved from one  
5 back-end server to another or may appear to be stored at a back-end server when in fact the  
6 content is not stored at that back-end server, a method of transparently redirecting a request  
7 for the content such that the client system is unaware of the redirection, the method  
8 comprising the front-end server performing:

9                 an act of receiving a request for the content from the client system;

10                a step for querying a particular back-end server for the requested content,  
11 wherein the response to the query identifies one or more other back-end servers  
12 where the content is stored;

13                a step for, automatically and without user intervention, retrieving the  
14 requested content from a redirect back-end server, the redirect back-end server being  
15 one of the one or more other back-end servers identified in the redirect response; and

16                an act of sending the requested content to the client system.

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18           15. A method as recited in claim 14 further comprising a step for authenticating the  
19 client system.

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21           16. A method as recited in claim 15 wherein the query response identifies a list of  
22 back-end servers where the content is stored, the method further comprising a step for  
23 distributing the request to the redirect back-end server based on the client system  
24 authentication.

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2 17. A method as recited in claim 14 wherein the query response identifies a single  
3 back-end servers where the content is stored.  
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1           18. In a computerized system that includes a client system, a front-end server, and  
2 one or more back-end servers, all interconnected with a communication link, wherein the  
3 client system periodically accesses content stored on the one or more back-end servers  
4 through the front-end server, and wherein over time the content may be moved from one  
5 back-end server to another or may appear to be stored at a back-end server when in fact the  
6 content is not stored at that back-end server, a method of transparently redirecting a request  
7 for the content such that the client system is unaware of the redirection, comprising the acts  
8 of:

9                 the front-end server receiving a request for the content from the client  
10 system;

11                 the front-end server directing the request to a particular back-end server;

12                 the particular back-end server receiving the request from the front-end server;

13                 the particular back-end server creating a redirect response that identifies one  
14 or more other back-end servers where the content is stored; and

15                 the front-end server automatically and without client system intervention,  
16 redirecting the request to a redirect back-end server, the redirect back-end server  
17 being one of the one or more other back-end servers identified in the redirect  
18 response.

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20           19. A method as recited in claim 18 further comprising the act of the front-end server  
21 adding a front-end indicator to the request in order to indicate to the particular back-end  
22 server that the front-end server is making the request on the behalf of the client system.

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1           20. A method as recited in claim 19 wherein the redirect response from the particular  
2 back-end server identifies a list of back-end servers where the content is stored.

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4           21. A method as recited in claim 20 further comprising the acts of:

5                 the front-end server requesting authentication credentials from the client  
6 system; and

7                 the front-end server receiving proper authentication credentials from the  
8 client system.

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10           22. A method as recited in claim 21 further comprising the acts of:

11                 the front-end server receiving an authentication token that is associated with  
12 the authentication credentials; and

13                 the front-end server using the authentication token as a key for a hash  
14 operation to identify the redirect back-end server from the list of back-end servers  
15 identified in the redirect response.

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17           23. A method as recited in claim 18 wherein the redirect response from the particular  
18 back-end server identifies a single back-end server where the content is stored.

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20           24. A method as recited in claim 18, further comprising the acts of:

21                 the front-end server receiving the requested content from the redirect  
22 back-end server; and

23                 the front-end server sending the requested content to the client  
24 system.

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1        25. In a computerized system that includes a client system, a front-end server, and  
2 one or more back-end servers, all interconnected with a communication link, wherein the  
3 client system periodically accesses content stored on the one or more back-end servers  
4 through the front-end server, and wherein over time the content may be moved from one  
5 back-end server to another or may appear to be stored at a back-end server when in fact the  
6 content is not stored at that back-end server, a computer program product for implementing  
7 a method of transparently redirecting a request for the content such that the client system is  
8 unaware of the redirection, comprising:

9              a computer readable medium for carrying machine-executable instructions  
10             for implementing the method; and

11              wherein said method is comprised of machine-executable instructions for the  
12             front-end server performing the acts of:

13                  receiving a request for the content from the client system;

14                  directing the request to a particular back-end server;

15                  receiving from the particular back-end server, a redirect response  
16             identifying one or more other back-end servers where the content is stored;

17                  automatically and without client system intervention, redirecting the  
18             request to a redirect back-end server, the redirect back-end server being one  
19             of the one or more other back-end servers identified in the redirect response;

20                  receiving the requested content from the redirect back-end server; and  
21                  sending the requested content to the client system.

1           26. A computer program product as recited in claim 25, the method comprised  
2 further of machine-executable instructions for performing the act of adding a front-end  
3 indicator to the request in order to indicate that the front-end server is making the request on  
4 behalf of the client system.

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6           27. A computer program product as recited in claim 25, wherein the redirect  
7 response identifies a list of back-end servers where the content is stored.

8           28. A computer program product as recited in claim 27, the method comprised  
9 further of machine-executable instructions for performing the acts of:

10              11           requesting authentication credentials from the client system; and

12              13           receiving proper authentication credentials form the client system.

14           29. A computer program product as recited in claim 28, the method comprised  
15 further of machine-executable instructions for performing the acts of:

16              17           receiving an authentication token that is associated with the authentication  
18              19           credentials; and

20              21           using the authentication token as a key for a hash operation to identify the  
22              23           redirect back-end server from the list of back-end servers identified in the redirect  
24              25           response.

26           30. A computer program product as recited in claim 25, wherein the redirect  
27 response identifies a single back-end server where the content is stored.

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1           31. In a computerized system that includes a client system, a front-end server, and  
2 one or more back-end servers, all interconnected with a communication link, wherein the  
3 client system periodically accesses content stored on one or more back-end servers through  
4 the front-end server, and wherein over time the content may be moved from one back-end  
5 server to another or may appear to be stored at a back-end server when in fact the content is  
6 not stored at that back-end server, a computer program product for implementing a method  
7 of redirecting a request for the content directed to a particular back-end server when the  
8 content is not stored at the particular back-end server, comprising:

9                 a computer readable medium for carrying machine-executable instructions  
10 for implementing the method; and

11                 wherein said method is comprised of machine-executable instructions for the  
12 particular back-end server performing the acts of:

13                     receiving a request for the content from the client system through the  
14 front-end server, the request including a front-end indicator in order to  
15 indicate that the front-end server is making the request on behalf of the client  
16 system;

17                     examining the content request for the front-end indicator;

18                     the front-end indicator having been present in the content request,  
19 creating a redirect response to the request that includes a list of one or more  
20 redirect back-end servers where the content is stored; and

21                     sending the redirect response to the front-end server so that the  
22 front-end server can redirect the request to the one or more redirect back-end  
23 servers.

1           32. A method as recited in claim 31 wherein the front-end indicator is added to a  
2       hypertext transfer protocol User Agent header.

3           33. A method as recited in claim 31 wherein the list of one or more redirect back-end  
4       servers is identified in a hypertext transfer protocol 305 Use Proxy response from the  
5       particular back-end server.

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